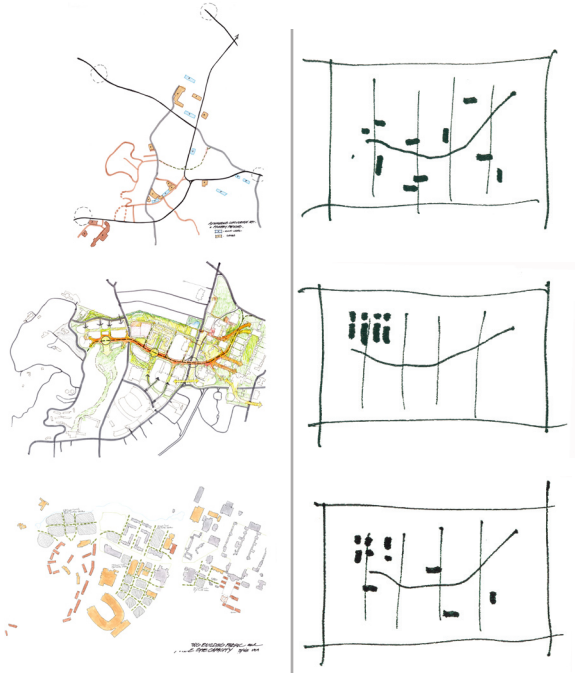
SCIENCE & ENGINEERING AREA WORKSHOP

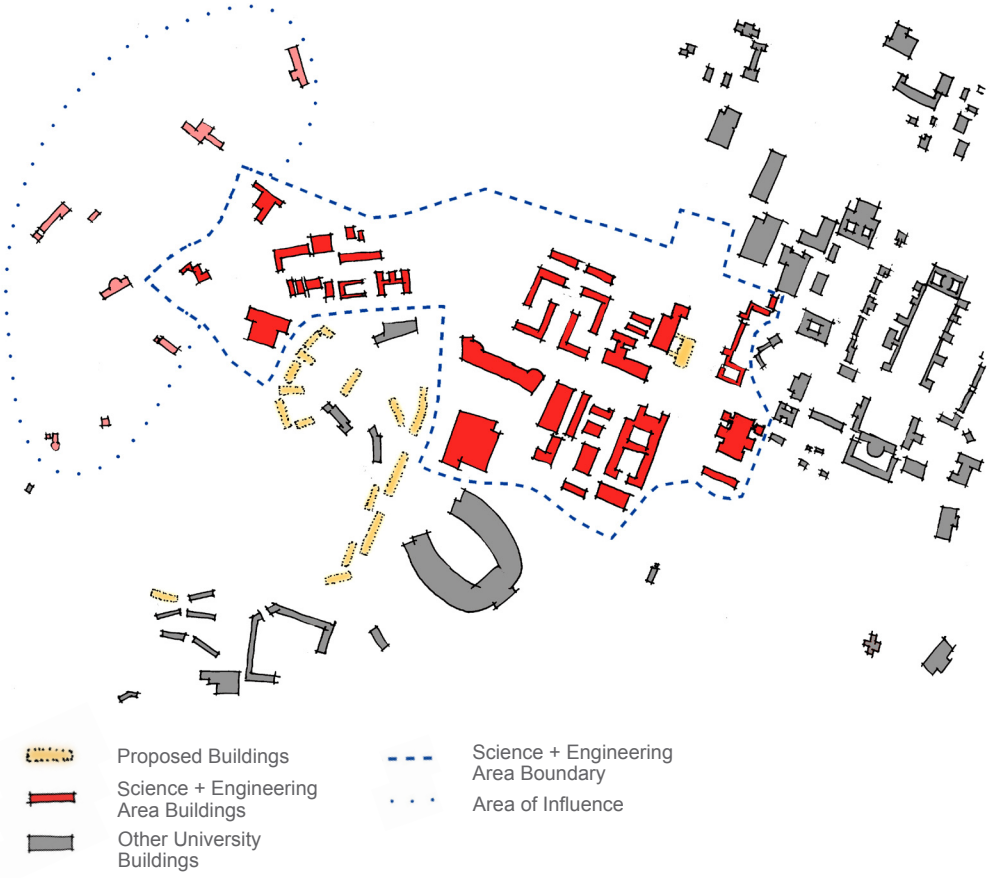


WORKSHOP
May 2nd & 3rd, 2005

FOLLOW-UP
September 2005

SCIENCE & ENGINEERING AREA WORKSHOP

WORKSHOP
May 2nd & 3rd, 2005



SCIENCE & ENGINEERING AREA WORKSHOP

WORKSHOP SUMMARY REPORT
May 2nd & 3rd, 2005

FOLLOW-UP
September 2005

SCIENCE & ENGINEERING AREA WORKSHOP

SUMMARY REPORT

May 2nd & 3rd, 2005

PARTICIPANTS:

Stakeholders:

Milton Adams, Associate Provost for Administration
Ed Ayers, Dean, College of Arts and Sciences
James Aylor, Interim Dean, School of Engineering
Melody Bianchetto, Director of the Budget
David Breneman, Dean, Curry School of Education
Adam Daniel, Associate Dean for Administration and Planning, Arts and Sciences
Mark Doherty, Chief Housing Officer
Robert Dillman, Chief Facilities Officer, Facilities Management
Mark Fletcher, Director, Intramural Sports
Ariel Gomez, Vice President for Research and Graduate Studies
Cheryl Gomez, Utilities Director, Facilities Management
George Hornberger, Associate Dean, Environmental Sciences
Rebecca Kneedler, Associate Dean for Academic Affairs, Curry School
Rich Kovatch, Associate Vice President for Business Operations
Art Lichtenberger, Lewis Mountain Neighborhood Association
Pace Lochte, Director, Office of the VP for Research
Richard Minturn, Academic Capital Programs Manager, Facilities Management
Robert Pate, Associate Dean for Administrative Services, Curry School
Bill Thurneck, Associate Dean for Administration, Engineering
Becca White, Director, Department of Parking and Transportation
Ida-Lee Wootten, Director of Community Relations

Working Group:

Steve Benz, Judith Nitsch Engineering
Andrew Greene, GIS Planner, Office of the Architect
Brian Hogg, Senior Preservation Planner, Office of the Architect
Mary Hughes, Landscape Architect for the University of Virginia
Bill Johnson, Landscape Architect and Campus Design Consultant
Tom Leback, Senior Facility Planner, Office of the Architect
Ryan Madson, Student Intern, Office of the Architect
Julia Monteith, Senior Land Use Planner, Office of the Architect
David Neuman, Architect for the University of Virginia
Carl Tewksbury, Kimley-Horn Associates

WORKSHOP AGENDA:

Monday, May 2, 2005	
Activity	*Facilitator/Participant*
Introduction	David Neuman
Stakeholders' Objectives	
College of Arts and Sciences	Ed Ayers / Adam Daniel
School of Engineering	James Aylor / Bill Thurneck
Research and Graduate Studies	Ariel Gomez
Office of the Provost	Milton Adams
School of Education	David Breneman / Robert Pate
Business Operations	Rich Kovatch
Facilities Management	Bob Dillman
Intramural Recreational Sports	Mark Fletcher
Watershed Review	Steve Benz
Historic Preservation	Brian Hogg

Tuesday, May 3, 2005	
Activity	*Facilitator/Participant*
Introduction	David Neuman
Planning Approaches	Bill Johnson
Grounds Connectivity	David Neuman / Julia Monteith
General Discussion	Everyone
Closing Remarks	David Neuman

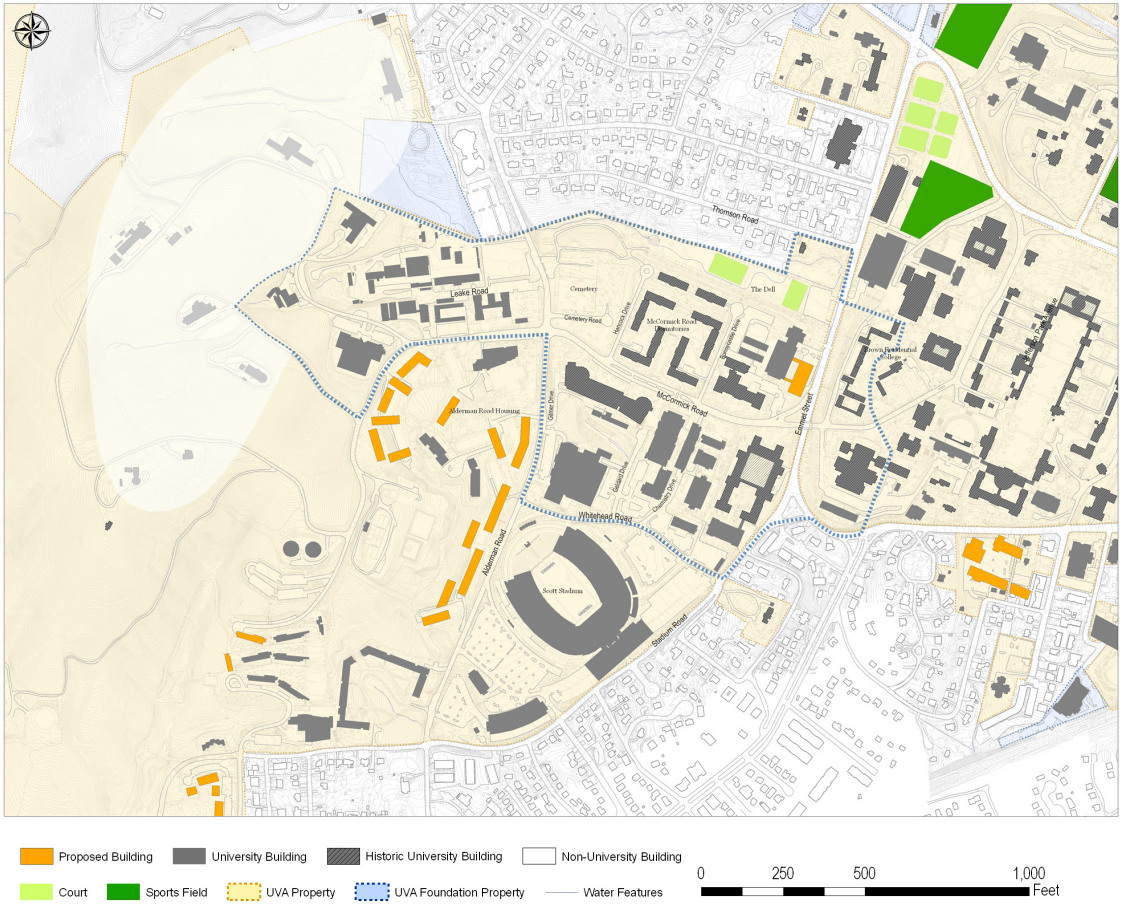
SUMMARY REPORT

May 2nd & 3rd, 2005

INTRODUCTION:

presented by David Neuman, Architect for the University

- The Science & Engineering Workshop is part of a comprehensive series of "area workshops", the purpose of which is to develop the framework for the upcoming Grounds Plan.
- The workshops address the specific needs of each area as well as the systems that link it with the rest of the Grounds.
- The "area plans" are for programmatically related or geographically connected precincts.
- The Academical Village will play the central organizing role for connectivity and across Grounds.
- The Science & Engineering precinct is a core area within Grounds.
- A holistic approach to planning includes an understanding of natural systems (water and habitat), transportation, and infrastructure as they relate to the University and surrounding region.
- Themes to be developed in the workshop are organized around the "Three E's" of sustainability: Environment, Economy, Equity. Addressing sustainability means working with the site instead of against it.
- The Workshop includes discussion of connectivity and circulation across Grounds, including the relationship with upcoming projects, such as South Lawn.
- Pedestrian flow diagrams from previous workshops demonstrate these formal and informal connections.
- A dialogue of Science & Engineering departmental concerns is currently at the academic fore, especially in relation to capital programs and expansions.
- Several Science & Engineering functions, such as Bioengineering (located in MR-5), are outside of the Science & Engineering precinct.
- Infill development for departmental expansion will affect infrastructural growth, but infill is preferable to green field development beyond the precinct, for many reasons.
- Infill promotes proximity and inter-departmental dialogue.



STAKEHOLDER ISSUES:

College of Arts and Sciences
presented by Adam Daniel, Associate Dean for Administration and Planning

- The key feature of Arts & Sciences is departmental diversity and interdisciplinary programs.
- Research and teaching in the sciences is broad and experiencing rapid growth (eg.: morphogenesis and nanotech programs, and the Project on Aging).
- Three challenges face the College and are noted below followed by specific issues related to these challenges:
  1) Spatial: higher-education benchmarks demonstrate that UVA has a space deficit of 125 square-foot per student.
  2) We are lacking interdisciplinary wet lab space.
  3) More space is required to accommodate the undergradute research.
- The facilities are inadequate - the quality of research facilities is perceived as poor and in need of upgrading.
- There is a lack of centrality and organization - Science departments are separated from the humanities and from each other.
- New buildings have been proposed for Psychology and Life Sciences, but we need to find sites for them.
- The departments should be strong, in part, because of facilities, not in spite of them.

Clark Hall

Thornton Hall

School of Engineering & Applied Science
presented by James Aylor, Interim Dean

- The SEAS enrollment has grown consistently over the last 15 years, with no corresponding expansion of facilities - the last renovation was in 1998.
- We would like to build the faculty to 175; it is currently at 143 faculty, with limited space for additions.
- There is demand for more PhD students.
- The undergraduate labs within the school are insufficient.
- Teaching space and undergraduate research space are relinquished for graduate and faculty research projects.
- Interdisciplinary programs, such as the Engineering Business minor, are becoming more popular.
- Information Technology and Bioengineering buildings should support more cross-disciplinary activity.
- The collaborative work with the Physics department does not have shared space within SEAS.
- The School needs common faculty gathering areas and other common spaces.

Vice President and Provost
presented by Milton Adams, Associate Provost for Administration

- There is a need to create inter-academic communities that facilitate communication.
- The “Digital Humanities” speak a different language than Science & Engineering, but wish to foster collaboration through shared facilities.
- There is an overall need to establish shared facilities that maximize use of teaching and research space.

STAKEHOLDER ISSUES:

Vice President for Research & Graduate Studies
presented by Ariel Gomez, Vice President

- Extramural research funds have grown more than 100% in the past decade - most of this funding has gone to the School of Medicine.
- There is a 500K – 1 million square-foot deficit in research facilities.
- Of the upcoming $3 billion capital campaign, a significant percentage will be allotted to Science & Engineering research.
- Morphogenesis and regenerative medicine will also receive significant funds.
- Environmental studies and the Project on Aging groups (both receiving multi-million dollar research grants) are very active and visible and will eventually need their own space.
- The Project on Aging has already produced research with clinical implications, and their interests and funding will continue to grow.
- STARS Program: High-profile faculty require sufficient staff and facilities, thus requiring additional space.
- SEAS and Arts & Science have funding for additional senior faculty but cannot add them right now due to space constraints.
- New research facilities should be located proximate to the medical school and biology/ bio-engineering departments.
- Proposed institutes should be multidisciplinary from the beginning.

Curry School of Education
presented by Robert Pate, Associate Dean for Administrative Services

- Academic programs at the School of Education have outgrown the existing facilities and several programs are housed in outlying facilities.
- Existing facilities do not meet the SCHEV standards.
- The bridge at Ruffner Hall provides cross-Grounds linkage and moves pedestrians across the entrance. How can Ruffner encourage more interface with students?
- The School of Education is primarily thought of as a graduate school, although it also teaches undergraduates.

Ruffner Bridge at the Curry Schol of Education

Business Operations
presented by Rich Kovatch, Associate Vice President

- McCormick Road housing accommodates approximately 1,400 first year students.
- The new housing policy will require all 1st year students to live in the same precinct.
- There are opportunities for infill in McCormick Road area as the need for housing expands.
- The demand for residential colleges for upper-class students will increase.
- Proximity to residential facilities must be considered when planning new academic facilities.
- The Observatory Hill dining hall will open in Fall 2005, seating 1,000 students.
- Dining should be thought of as a central facility; separate dining facilities to serve individual buildings are expensive to operate.
- Vehicular traffic on McCormick Road has increased, mostly due to malfunction of the mechanical gate, which will be fixed Summer 2005.
- The University Hall parking becomes critical as surface parking in Science & Engineering precinct are infilled.
- Parking demands need to be part of the overall infrastructure plan.
- The cemetery at Alderman and McCormick will expand by 400 in-ground plots and 250 vaults.

STAKEHOLDER ISSUES:

Facilities Management
presented by Bob Dillman, Chief Facilities Officer

- Facilities Management's regular and emergency response operations need to be proximate to where the calls are made. The current location is adequate, but a move farther away will create impacts in terms of service and related maintenance time frames.
- There is need for an additional four acres to house storage facilities for Facilities Management.

Energy and Utilities
presented by Cheryl Gomez, Utilities Director

- The water supply in the Science & Engineering area is adequate for future needs.
- Steam tunnels for new heating expansion are adequate.
- The chilled water facility at Aquatic & Fitness Center meets existing needs but will need to be expanded to serve additional needs across Alderman Road, and a new facility will be required on Observatory Hill.
- The storm and sanitary sewer need to be reconfigured and the capacity at UVA is limited by that of the Rivanna Authority.

Leake Building, Facilities management

Historic Preservation
presented by Brian Hogg, Senior Preservation Planner

- UVA recently received a Getty Grant to create a Historical Preservation Framwework Plan, which will address both buildings and landscapes.
- This Framework Plan and its related process will establish five tiers or categories of historical importance.
- Essential and important buildings and landscapes within the Science & Engineering precinct include Monroe Hill, Brown College, Clark Hall, Lambeth House, Thornton Hall, McCormick Road dorms, the cemetery, and the Dell.
- Each building and landscape should be considered for its contribution to academic expansion beyond Central Grounds.

Gilmer Hall

Intramural Recreation
presented by Mark Fletcher, Director

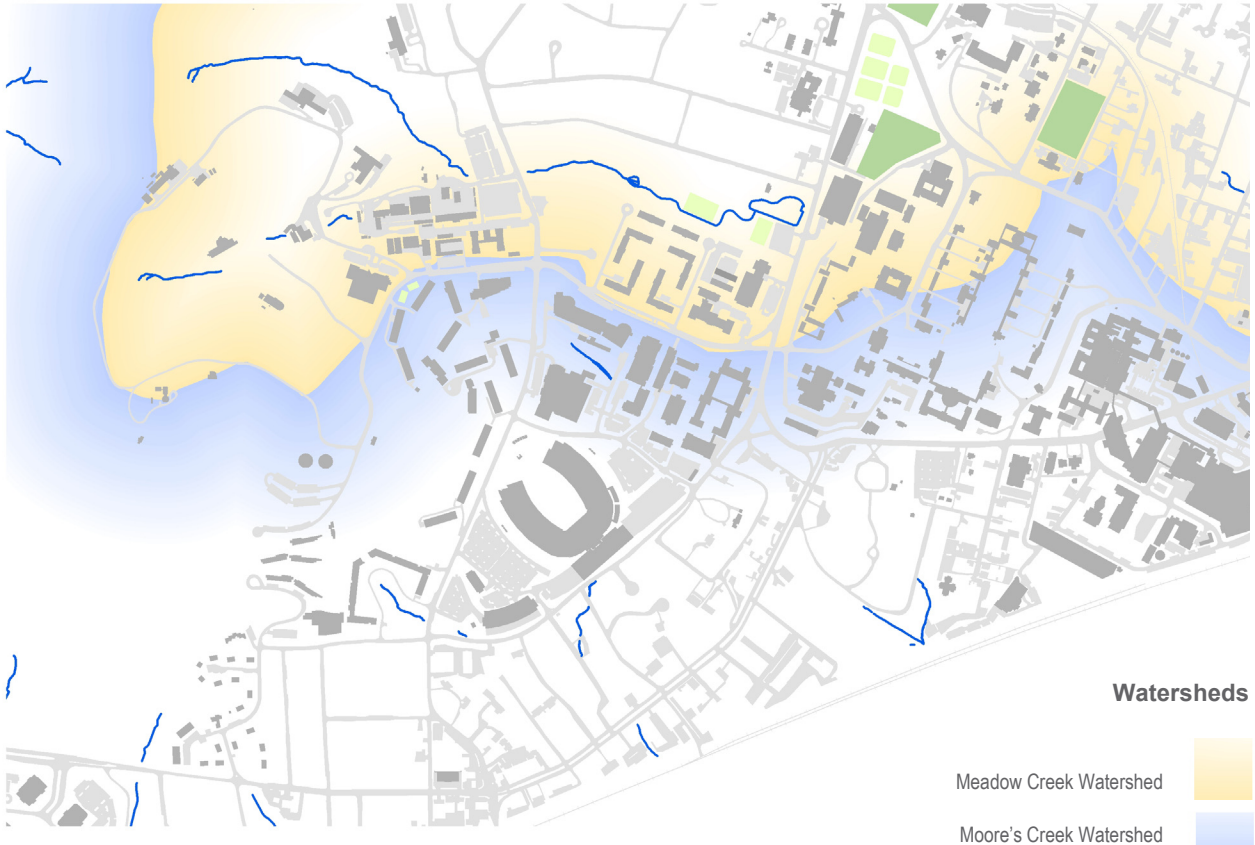
- The recreational facilities need a stronger connection to housing; the AFC is a good example of this connectivity and adjacency.
- Social activities and informal gatherings occur near recreational facilities, for example at the Poolside Café.
- Slaughter Recreation Center is outdated and needs to be replaced, but the structure could be resited at that time.
- Most of the recreation facilities are heavily used by summer camps at UVA.

Slaughter Recreation Center

PRECINCT PROJECT REVIEW: STORMWATER MANAGEMENT

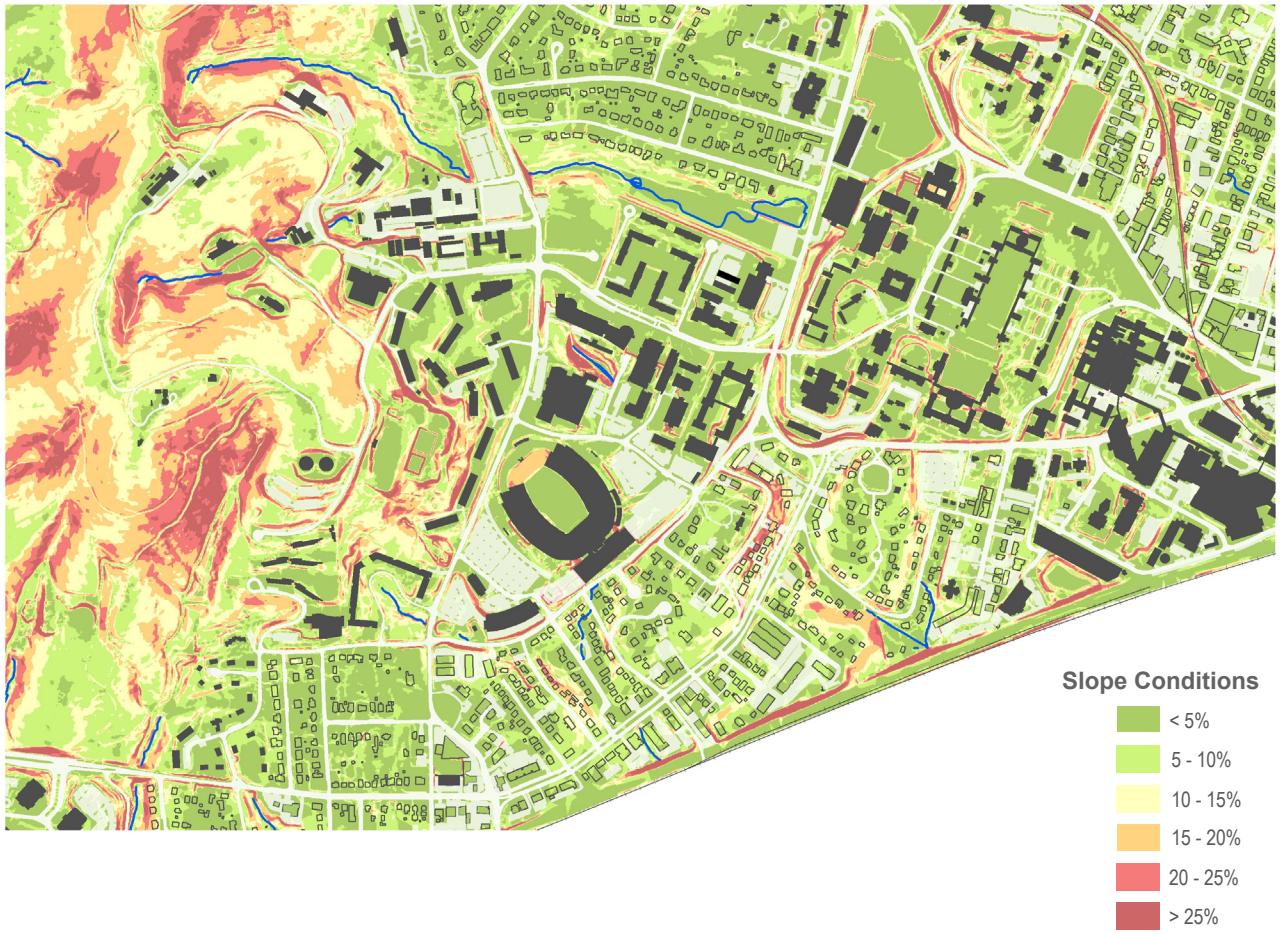
presented by Steve Benz, Judith Nitsch Engineering

- UVA Grounds include two watersheds - Meadow Creek and Moore's Creek. McCormick Road is the dividing line between a portion of these two watersheds.
- The new regional stormwater management plan allows UVA to manage its stormwater within the states regulatory constraints.
- The University has the opportunity to create on-site retention stormwater amenities such as "The Dell".
- Meadow Creek - which is the watershed for the northern portion of the Sciences & Engineering area - can accommodate increased stormwater system capacity.
- Moore's Creek is not able to accomodate additional capacity except through increased Best Management Practices and on-site containment.



PRECINCT PROJECT REVIEW: LAND USE AND NATURAL CONDITIONS

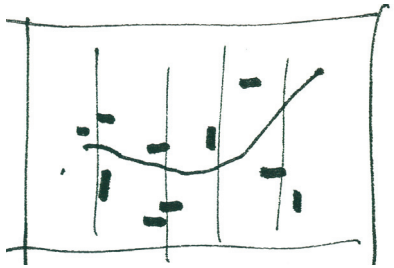
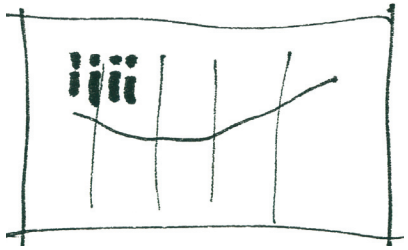
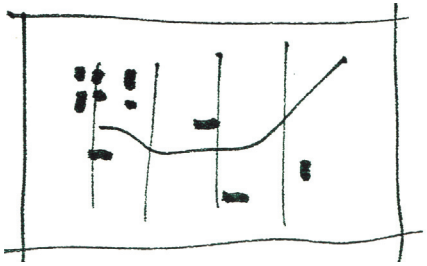
- Land use patterns in the Science & Engineering precinct have developed in response to natural conditions such as slopes and drainage, and significant re-grading has been done in the past to accomodate development.
- Forested areas and Meadow Creek serve as natural boundaries for the area.
- Future development should respect natural conditions and attempt to enhance them.
- Constraints on sites that include difficult topography and stream systems should restrict certain kinds of development.
- Future development must consider these constraints, which will dictate and constrain buildable land.



RECOMMENDATIONS: SUMMARY CONCEPTS

Presented by Bill Johnson, Landscape Architect and Campus Design Consultant

Basic Development Options: The options presented below represent development approaches that could be applied to the Science & Engineering area. The current approach to development in this area is site by site as the need for new buildings arise. The other diagrams present other appoaches that would be more comprehenisively planned. The matrix describes the opportunities or issues with each approach.

	Connectivity	Integration	Sustainability
1) CONTINUE SITE-BY-SITE DEVELOPMENT 	Allows current precincts to develop on buildable adjacent land. Site-by-site development might ignore greater connectivity problems and potential strengths for connecting across campus.	Creates adjacencies for existing departments, but will not necessarily maximize inter-departmental, multidisciplinary uses.	Piecemeal approach to site planning tends to exclude natural systems and ecological processes that extend beyond the site.
2) MAJOR NEW CONCENTRATION 	Creates separate precinct that would need to be connected to existing circulation patterns.	Provides greater freedom for programmatic needs to be developed across large, “blank slate” site. The concentration might be segregated from other related academic facilities, such as the Medical Center or departments in the College of Arts & Sciences.	Provides the ability to create higher density precincts that use less land, but could also result in sprawling compounds similar to North Grounds development. Requires demolition of existing facilities or new development on “greenfield”sites. Will not necessarily integrate natural systems across the site.
3) LIMITED CONCENTRATION AND EARLY SITE-BY-SITE 	Encourages and increases movement within existing areas while allowing for the creation of future connections.	Allows broader approach to land use and inter-departmental needs. Integrates new facilities on infill sites and in larger groupings, where needed.	Site planning within the area is better able to account for natural systems and ensure that development follows a holistic environmental planning strategy.

SUMMARY REPORT

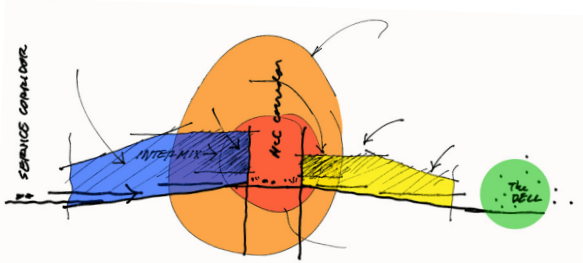
May 2nd & 3rd, 2005

RECOMMENDATIONS: OVERVIEW

presented by Bill Johnson, Landscape Architect and Campus Design Consultant

- There are two fundamental approaches to siting campus buildings, either site by site or planned developments of building clusters. The approach chosen is based on available land and phasing opportunities, but development of clusters is the preferred and efficient use of land.
- Creative assembly of buildings and open spaces, includes consideration of connections that can be formed through sensitive siting as well as programmatic adjacencies. Shifts in the road network, such as Whitehead Road, allow for the development of new building clusters. Providing activity nodes or student life centers along pedestrian routes provides opportunities for interaction.
- The transportation system consists of connective routes for pedestrians, bicycles, transit, and vehicles. The framework diagram includes connections provided with bridging and greenway elements, in addition to the revision of McCormick Road as a transit and pedestrian-oriented street.
- The natural systems of the Grounds and sustainability will be emphasized with careful consideration of the campus topography, forested areas and stream zones.
- Phaseability and the infrastructure of projects needs to be a primary planning concern (recognizing early-term, mid-term and long-term considerations for each project).

Conceptual Framework Diagram



McCormick Road Corridor

Primary circulation in the Science and Engineering area will focus on the McCormick Road "spine" - a "seam" linking residential and academic precincts with activity nodes for campus use. Academic buildings will be sited to maximize interdepartmental interaction, with a mix of academic and "student life" centers occuring close to the Road. The Dell will serve as an alternate route for pedestrians and bicyclists between Alderman Road and the Newcomb Hall area.

RECOMMENDATIONS: STUDENT LIFE CENTERS

presented by Bill Johnson, Landscape Architect and Campus Design Consultant

- Centers for student life bring people into regular contact with others; these centers are "stepping stones" within the academic community and are ideally located approximately every 300 feet along circulation paths.
- The centers include dining facilities, recreational facilities, coffee kiosks, and casual gathering spaces near classrooms. The diagram shows the existing centers on Grounds, and additional ones should be planned.
- A network of greenways will parallel the service and utility corridors, coalescing into a framework that connects buildings and activities.
- Prime elements that lend to the campus character are The Lawn, plazas, gardens, and greenways, which give form to the campus and provide extraordinary distinction and identity to the Grounds. Further development of these elements within new building clusters will help to form larger connections throughout the campus.

Student Life Centers Diagram

RECOMMENDATIONS: VEHICULAR CIRCULATION

presented by David Neuman, Architect for the University

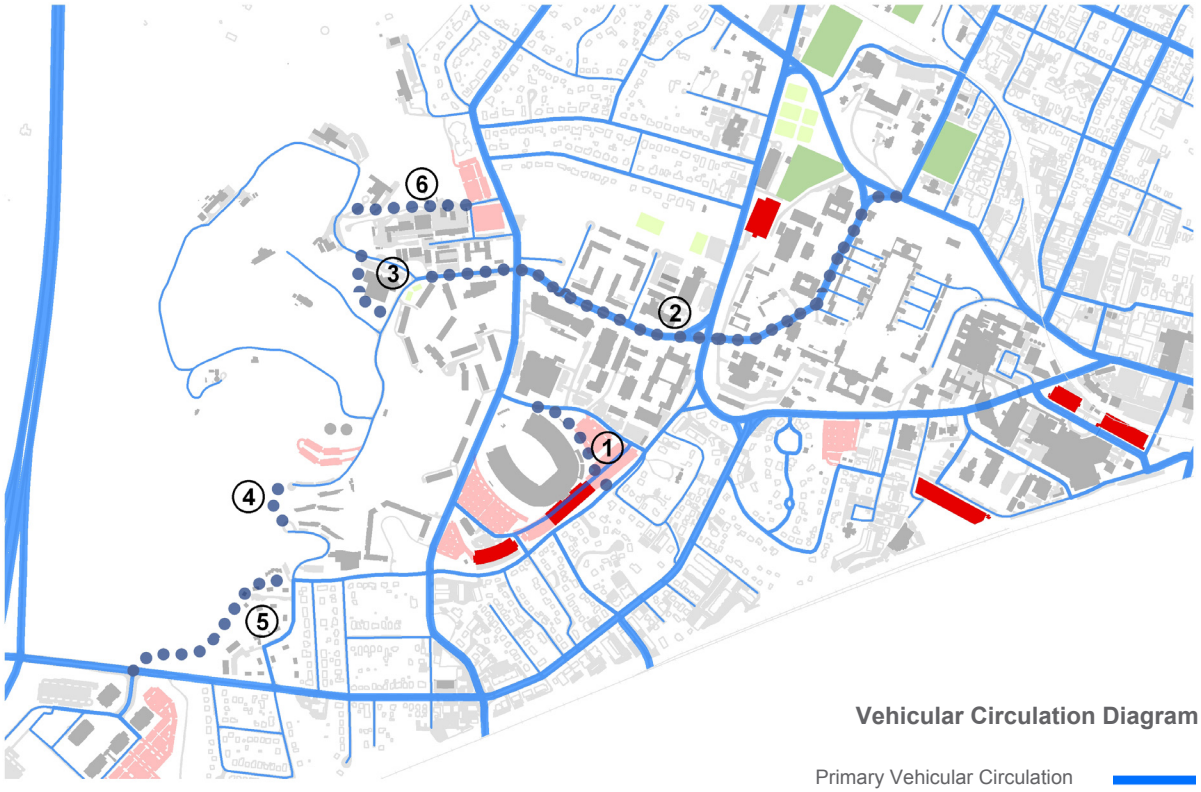
Six initiatives were analyzed to improve the transportation system or to provide additional capacity for building development areas. The initiative locations are noted in the adjacent diagram - please refer to the appendix for the analysis. A summary of each initiative is noted below:

1. Realign the east end of Whitehead Road to provide additional building capacity in the Science and Engineering precinct.
2. Develop a managed street concept for McCormick Road that emphasizes pedestrians and transit.
3. Realign Edgemont Road, directly west of Alderman Road to allow for building expansion.
4. Develop a connection through Hereford College to provide additional access
5. Extend Stadium Drive to Fontaine Avenue to provide access to and from the stadium.
6. Develop a parallel road north of Facilities Management that replaces Leake road, supports the new building development zone, and decreases traffic on the parallel stretch of McCormick Road to make a pedestrian friendly environment.

Of these initiatives, all are considered feasible, but number 3 was determined to be unnecessary, since the new road - initiative 6 - would preclude the need for this section of Edgemont Road. Initiative 4 is currently proceeding towards implementation.

Other considerations included:

- Cost effectiveness of parking spaces will continue to decrease; surface parking on Grounds will become more limited.
- A "Research Belt" across the south of campus would link Science & Engineering with the Health System precinct.
- The multimodal transportation spine along McCormick Road would limit vehicular access transit, some service and delivery uses during the weekday.



Vehicular Circulation Diagram

Primary Vehicular Circulation
Secondary Vehicular Circulation
Proposed Roadway Alignments
Parking Garage
Surface Parking
Transportation Initiative Key 1

RECOMMENDATIONS: TRANSPORTATION

presented by David Neuman, Architect for the University

- Enhanced connectivity across the Science & Engineering area includes:
  1) A greenway from McCormick Road at Observatory Hill Dining Hall to Piedmont housing.
  2) A Stadium Road extension to Fontaine Research Park, which has more buildable space.
  3) Formalize pedestrian/bicycle way through Alderman housing.

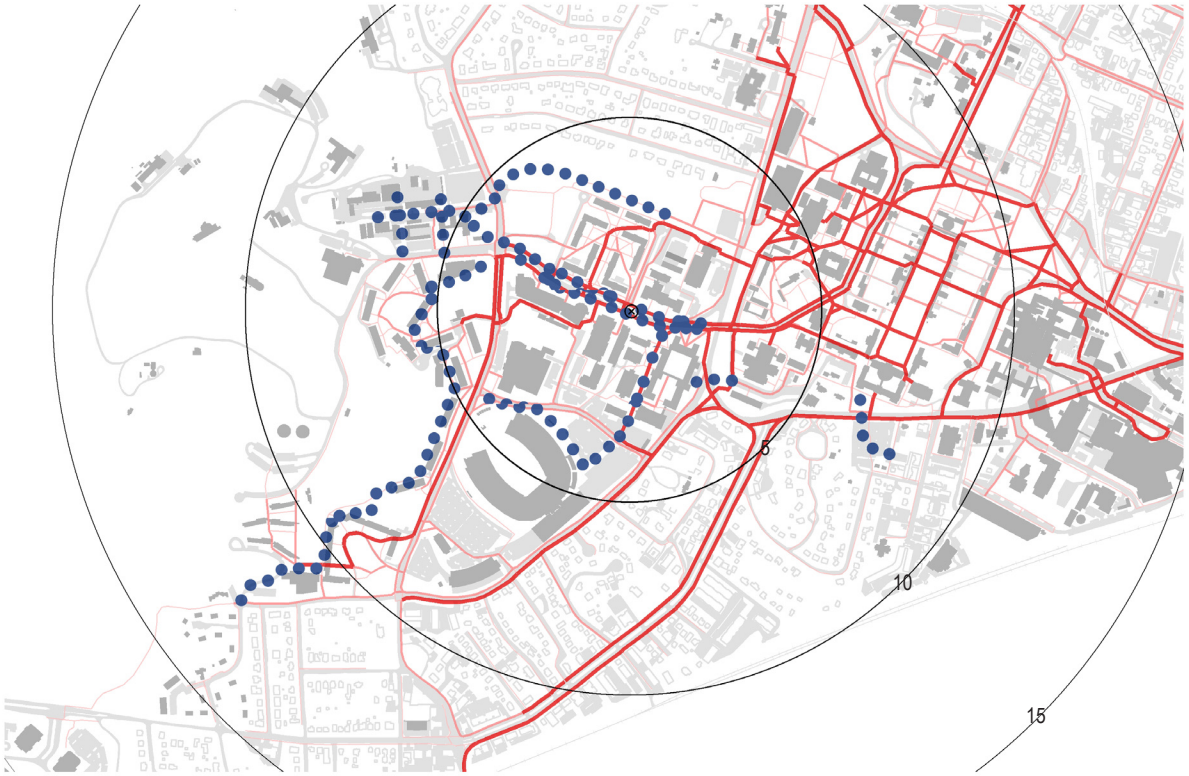
- Increased connection to Central Grounds includes three links:
  1) JPA terrace: links the Academical Village to the South Lawn and the School of Medicine.
  2) 15th Street and Crispell Drive landscape improvements for pedestrian/bicycle connection to the South Lawn project.
  3) Clark Hall to Engineering bridge: new bridge above JPA provides alternate to McCormick Road bridge.

- Enhancements for connectivity occur along two corridors: Cross Grounds to Central Grounds and Health System, and through Piedmont housing to Fontaine research park.

- Greenways and spaces between buildings should be thought of as outdoor hallways.

- How do we encourage bicycles over cars?
  1) Make spaces that provide continuous, seamless flow.
  2) Excessive vehicle lane width on many streets (such as McCormick) allows space for bicycle lanes.
  3) Install bicycle racks as a standard policy with all new and renovation projects.

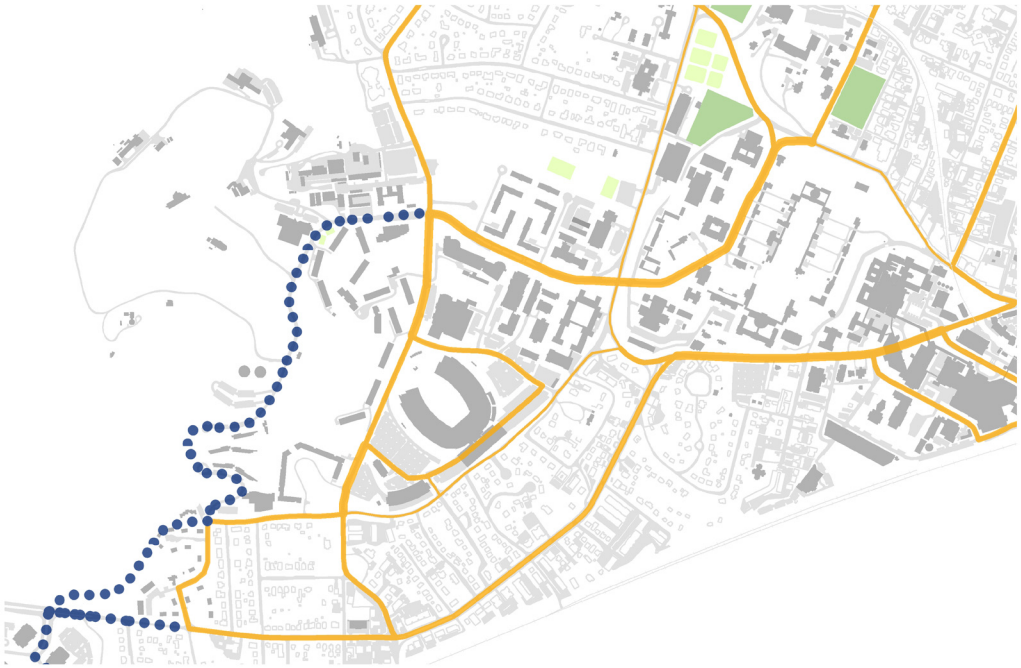
- Add pedestrian/bicycle amenities to the western leg of the Dell to connect Facilities Management precinct.



Pedestrian Circulation Diagram
with Five, Ten, and Fifteen Minute Walking Radii

Major Pedestrian Circulation
Minor Pedestrian Circulation
Proposed Pedestrian Corridors

RECOMMENDATIONS: TRANSPORTATION



Transit Circulation Diagram

- Primary Transit Routes
- Secondary Transit Routes
- Proposed Transit Alignments

Bicycle Circulation Diagram

- Major Bicycle Circulation
- Proposed Bicycle Circulation Improvements

RECOMMENDATIONS: ILLUSTRATIVE WITH PROPOSED BUILDING CAPACITY

presented by Julia Monteith, Senior Land Use Planner

In summary, the major goals of the new development in the Science and Engineering precinct are:

- To form stronger physical and academic connections with the use of transportation and open space initiatives as well as new building development throughout the precinct and to adjacent Grounds areas.
- To provide infill capacity for new building development within the precinct by developing new buildings or replacing existing structures with higher density use. The additional building capacity is shown in the adjacent diagram tiering off McCormick Road. In total, the analysis yielded 1,900,000 available GSF for development.
- To emphasize sustainable development with consideration of Grounds-wide systems such as the natural systems - watersheds, open space - and individual building sites.
- To develop a full understanding of pragmatic needs and potential and desirable academic adjacencies.
- To develop a plan for the replacement of the existing Facilities Management site. Analysis of potential sites indicated that the Facilities Management could be split over 2 sites, with a portion of the program being located at the existing site, and the remaining uses to be located off-Grounds.

RECOMMENDATIONS: ENGINEERS' WAY AND MCCORMICK ROAD RENDERINGS

- As a manged street, the use of McCormick Road changes to a pedestrian-transit priority corridor. Dedicated bicycle and bus lanes will streamline traffic flow, with limited vehicular access making the area pedestrian and bicycle friendly.
- McCormick Road currently divides the area. Residential and academic functions should be joined at McCormick with a series of crosswalks and tree plantings that designate pedestrian areas.
- Suggested improvements occur at the edge of the street and include dedicated bicycle lanes, wider sidewalks, tree plantings, and improved street furniture.
- Additional activity nodes will be located along McCormick Road to create a vibrant area with multiple uses.

View looking West along McCormick Road

RECOMMENDATIONS: ENGINEERS' WAY AND MCCORMICK ROAD RENDERINGS

- With McCormick Road as a managed street and new buildings located in the Science and Engineering precinct, the intersection of Engineers' Way and McCormick becomes a circulation node and activity center.
- Engineers' Way should also provide pedestrian access between Central Grounds and Scott Stadium during athletic and cultural events involving the public.
- Spaces in front of buildings should allow for passive use and provide activity centers. Many of these spaces should also be considered as part of the University's "green infrastructure."

View of Engineer's Way at McCormick Road

WORKSHOP FOLLOW-UP: PARTICIPANT COMMENTS

- **Transportation System:**
  1) What are the next steps on the proposed alignment for Whitehead Road?
  Answer: The alignment needs further analysis both in terms of the road relationships (Whitehead and Stadium) and the interface with the Stadium and its garage by our transportation consultants. In addition, these transportation initiatives also need further review by the Senior University leadership and the City.

  2) Has Athletics been involved in the planning for Whitehead Road - in particular as it relates to the Stadium?
  Answer: Yes, Craig Littlepage has been involved in these discussions and raised the issue around event security that also needs further analysis.

  3) What planning has been completed for a new parking garage located south of the Stadium?
  Answer: We know that it is location for a potential parking structure, but it has not been studied in terms of the larger traffic patterns or the actual design of the structure.

  4) Would it be possible for Whitehead Road to be a pedestrian area from Stadium to Geldorf, and accessible to vehicles between Geldorf and Alderman to provide service to the buildings in this area?
  Answer: Yes, this is a potential option we can look at.

  5) Another option to consider and study is to manage Stadium Road extension as a controlled access.
  Answer: Yes, this could work to separate the residential use of the road from the parking use, and therefore buffer the neighbors in this area.

  6) Develop an alternative alignment for the resolution of Emmet and Stadium adjacent to the intersection with JPA in order to solve safety issues for pedestrians and vehicles. The goal is to create a pedestrian friendly crossing to shorten the distance between the West and South Grounds.
  Answer: The Office of the Architect will pursue this with our transportation consultants.

  7) What is the future of the Ruffner-related bridge?
  Answer: In general, this is a good location for a bridge, but the bridge itself is not in good condition. If we were to replace the bridge, it would be an improvement for the bridge to have a more direct relationship with Newcomb Hall - thus possibly located farther north than the current bridge.

  8) What planning is being completed to support bicycle use?
  Answer: The Office of the Architect is stepping up its planning around bicycle use - for instance by integrating bicycle racks into all new building projects; but there are many aspects of bicycle planning to be addressed before UVA will have a system. We have encouraged the Green Grounds Committee, a student group - to focus on the development of a bike plan among the other advocacy efforts they are involved in for the Grounds. Also, the City and County staff have indicated their willingness to plan together with us.

WORKSHOP FOLLOW-UP: PARTICIPANT COMMENTS

- **Programmatic:**
  1) Consult with Facilities Management on the potential programmatic split of the facilities and the related phasing.
  Answer: Yes, that is part of our planning process that has yet to be completed.

  2) Consider locating a childcare facility in the Piedmont housing area, that would be a convenient location with the concentration of parking occurring south of the Stadium.
  Answer: We will review this in our larger Grounds Planning work.